

aia file no 16-d

# Balfour

**rolling doors**

service doors - pages 2-11  
fire doors - pages 12-15  
pygmee doors - pages 16-18  
grilles - page 19



**Walter Balfour & Co., Inc.**

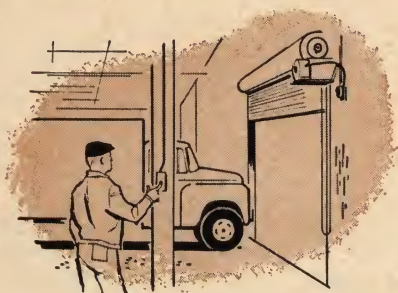
catalog 1960—1

aia file no 16-d

# Balfour

doors bring  
to your building

## ■ power operated service doors



----- completely automatic



----- operation by remote control

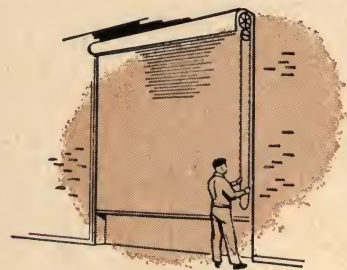


----- rapid operation



----- reduced heat losses

## ■ chain operated service doors



----- thrifty-low first cost



----- minimum maintenance

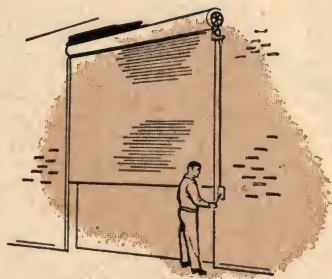


----- effortless operation



----- wide size range availability

## ■ crank operated service doors



----- quiet working



----- inside-outside operation



----- easily concealed operator

## ■ push-up service doors



----- space saver-minimum side room

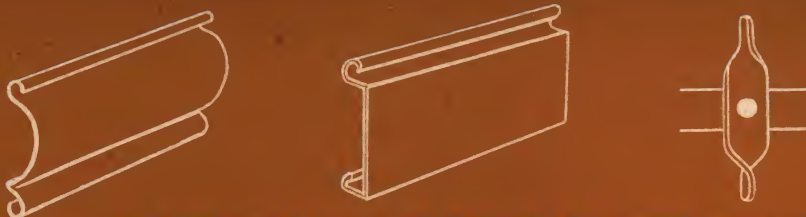


----- lowest cost



----- excellent balance





**an imaginative range of closures of unusual properties**

- Outstanding materials and finishes to withstand outdoor abuse, flexible design to harmonize with architectural lines, ability to mount on varied opening structures.
- **the Balfour name** ..... Through past performance and excellence of product as well as by acceptance by architects and builders, the name BALFOUR connotes quality and reliability. To the user it spells increased confidence.
- **Balfour technical service** The engineering department at Balfour makes available to all users and prospective users its knowledge of the door industry and its technical "know-how".

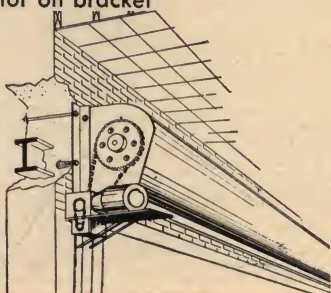
**index**

**16g**  
**Ba**

installation clearances	pages 4- 5
condensed specifications	pages 6- 7
slat details	page 6
guide details	page 7
standard specifications	pages 8- 9
optional materials and accessories	pages 10-11

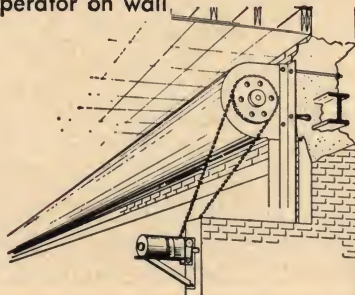
**type N40**

interior face mounted  
operator on bracket



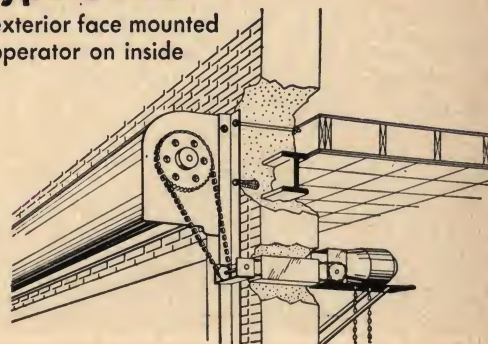
**type N40**

interior face mounted  
operator on wall



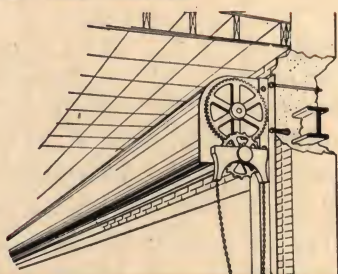
**type OT40**

exterior face mounted  
operator on inside



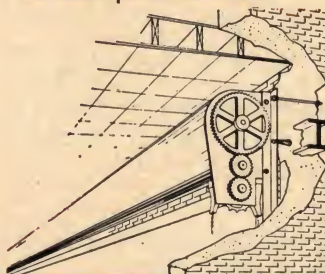
**type N20**

interior face mounted



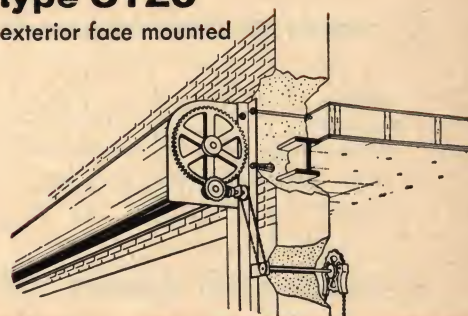
**type J20**

between jamb mounted



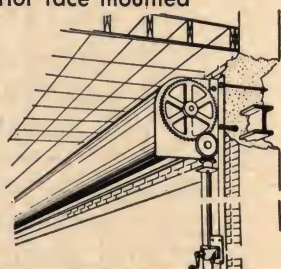
**type OT20**

exterior face mounted



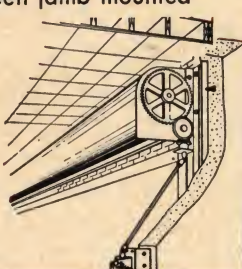
**type N30**

interior face mounted



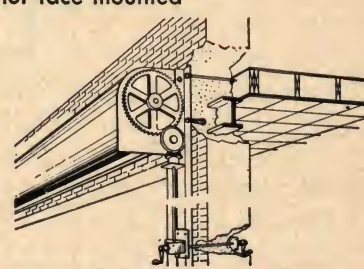
**type J30**

between jamb mounted



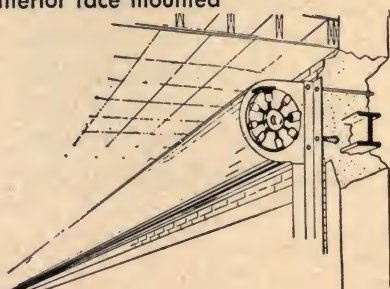
**type OT30**

exterior face mounted



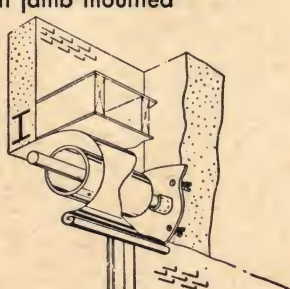
**type N10**

interior face mounted



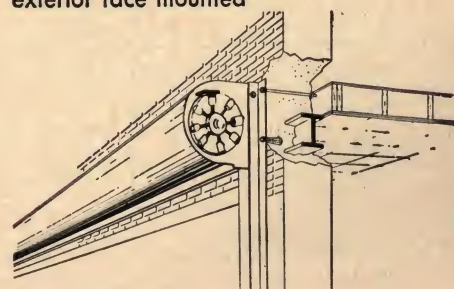
**type J10**

between jamb mounted



**type O10**

exterior face mounted





# service door installation clearances

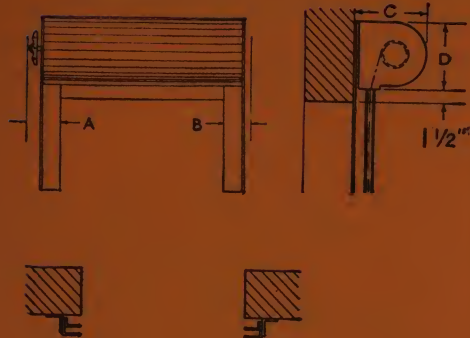
**note:** 1 data on pages 4, 5, 6, 7, 8 and 9 apply to doors of BALFOUR STANDARD SPECIFICATIONS.

2 consult with Home Office on doors with special features such as shown on pages 10 and 11.

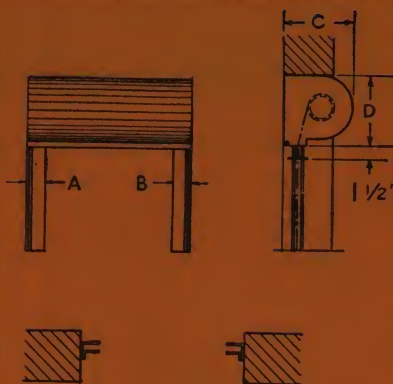
3 push-up doors are not recommended for openings above 100 square feet.

## types

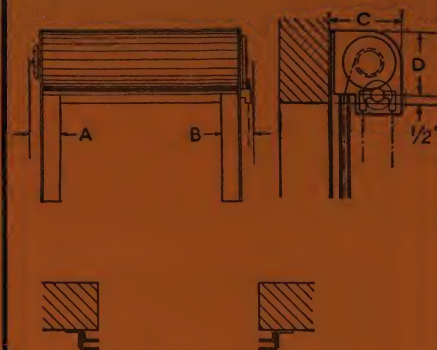
**push-up  
type N10  
face mounted**



**push-up  
type J10  
jamb mounted**



**chain  
type N20  
face mounted**

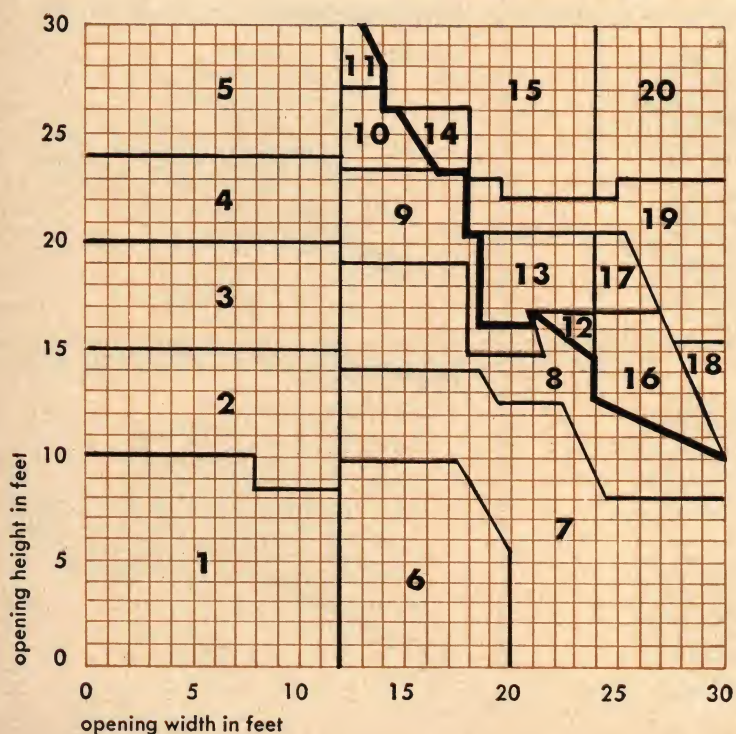


## clearances [dimensions in inches]

area number	A	B	C	D
1	5 1/4	5 1/4	12	13 3/4

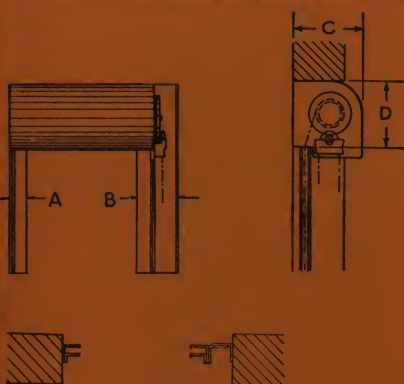
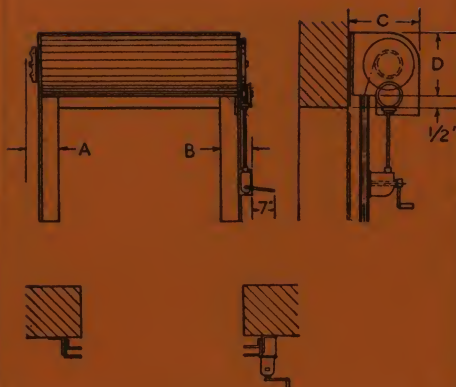
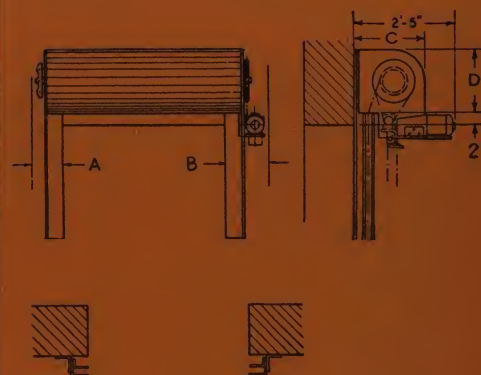
area number	A	B	C	D
1	2 3/4	2 3/4	12	13 3/4

## selection chart [all required clearances are keyed to area numbers on this chart]



area numbers	A	B	C	D
1	5 1/4	6 1/2	12	13 3/4
2	5 1/4	7	14 1/8	16
3	6	7	16 1/8	18 1/4
4	6	7	18 3/8	20
5	6	7	20 1/16	22
6	5 3/4	7 1/2	14 1/8	16
7	7	8	16 1/8	18 1/4
8	7	8	18 3/8	20
9	7	8	20 1/16	22
10	6 1/2	7 1/2	22 3/8	24
11	6 1/2	7 1/2	25 1/4	26
12	9 1/2	8	18 3/8	20
13	9 1/2	8	20 1/16	22
14	9	7 1/2	22 3/8	24
15	9 1/2	8	25 1/4	26
16	10	8 1/2	18 3/8	20
17	10	8 1/2	20 1/16	22
18	10	8 1/2	20 1/16	22
19	10	8 1/2	22 3/8	24
20	10	8 1/2	25 1/4	26



**chain**  
**type J20**  
 jamb mounted

**crank**  
**type N30**  
 face mounted

**motor**  
**type N40**  
 face mounted


^ motor units are wall mounted

area numbers	A	B	C	D
1	2 <sup>3</sup> / <sub>4</sub>	6	14 <sup>1</sup> / <sub>8</sub>	16
2	2 <sup>3</sup> / <sub>4</sub>	6	14 <sup>1</sup> / <sub>8</sub>	16
3	2 <sup>7</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub>	16 <sup>3</sup> / <sub>8</sub>	18 <sup>1</sup> / <sub>4</sub>
4	2 <sup>7</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub>	18 <sup>3</sup> / <sub>8</sub>	20
5	3	8	20 <sup>1</sup> / <sub>16</sub>	22
6	3 <sup>1</sup> / <sub>4</sub>	6 <sup>1</sup> / <sub>2</sub>	14 <sup>1</sup> / <sub>8</sub>	16
7	3 <sup>7</sup> / <sub>8</sub>	8 <sup>1</sup> / <sub>2</sub>	16 <sup>3</sup> / <sub>8</sub>	18 <sup>1</sup> / <sub>4</sub>
8	3 <sup>7</sup> / <sub>8</sub>	8 <sup>1</sup> / <sub>2</sub>	18 <sup>3</sup> / <sub>8</sub>	20
9	4	8 <sup>3</sup> / <sub>4</sub>	20 <sup>1</sup> / <sub>16</sub>	22
10	3 <sup>1</sup> / <sub>2</sub>	8 <sup>1</sup> / <sub>4</sub>	22 <sup>5</sup> / <sub>8</sub>	24
11	3 <sup>1</sup> / <sub>2</sub>	8 <sup>1</sup> / <sub>4</sub>	25 <sup>1</sup> / <sub>4</sub>	26
12	—	—	—	—
13	—	—	—	—
14	—	—	—	—
15	—	—	—	—
16	—	—	—	—
17	—	—	—	—
18	—	—	—	—
19	—	—	—	—
20	—	—	—	—

area numbers	A	B	C	D
1	5 <sup>1</sup> / <sub>4</sub>	7 <sup>1</sup> / <sub>4</sub>	14 <sup>1</sup> / <sub>8</sub>	16
2	5 <sup>1</sup> / <sub>4</sub>	7 <sup>1</sup> / <sub>4</sub>	14 <sup>1</sup> / <sub>8</sub>	16
3	6	7 <sup>1</sup> / <sub>4</sub>	16 <sup>3</sup> / <sub>8</sub>	18 <sup>1</sup> / <sub>4</sub>
4	6	7 <sup>1</sup> / <sub>2</sub>	18 <sup>3</sup> / <sub>8</sub>	20
5	6	7 <sup>1</sup> / <sub>2</sub>	20 <sup>1</sup> / <sub>16</sub>	22
6	5 <sup>3</sup> / <sub>4</sub>	7 <sup>3</sup> / <sub>4</sub>	14 <sup>1</sup> / <sub>8</sub>	16
7	7	8 <sup>1</sup> / <sub>2</sub>	16 <sup>3</sup> / <sub>8</sub>	18 <sup>1</sup> / <sub>4</sub>
8	7	8 <sup>1</sup> / <sub>2</sub>	18 <sup>3</sup> / <sub>8</sub>	20
9	7	8 <sup>1</sup> / <sub>2</sub>	20 <sup>1</sup> / <sub>16</sub>	22
10	6 <sup>1</sup> / <sub>2</sub>	8	22 <sup>5</sup> / <sub>8</sub>	24
11	6 <sup>1</sup> / <sub>2</sub>	8	25 <sup>1</sup> / <sub>4</sub>	26
12	9 <sup>1</sup> / <sub>2</sub>	8 <sup>1</sup> / <sub>2</sub>	18 <sup>3</sup> / <sub>8</sub>	20
13	9 <sup>1</sup> / <sub>2</sub>	8 <sup>1</sup> / <sub>2</sub>	20 <sup>1</sup> / <sub>16</sub>	22
14	9	8	22 <sup>5</sup> / <sub>8</sub>	24
15	9 <sup>1</sup> / <sub>2</sub>	8 <sup>1</sup> / <sub>2</sub>	25 <sup>1</sup> / <sub>4</sub>	26
16	10	9	18 <sup>3</sup> / <sub>8</sub>	20
17	10	9	20 <sup>1</sup> / <sub>16</sub>	22
18	10	9	20 <sup>1</sup> / <sub>16</sub>	22
19	10	9	22 <sup>5</sup> / <sub>8</sub>	24
20	10	9	25 <sup>1</sup> / <sub>4</sub>	26

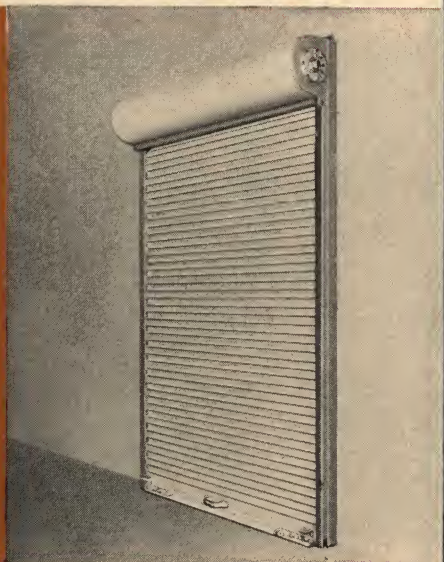
area numbers	A	B	C	D
1	5 <sup>1</sup> / <sub>4</sub>	12	14 <sup>1</sup> / <sub>8</sub>	16
2	5 <sup>1</sup> / <sub>4</sub>	12	14 <sup>1</sup> / <sub>8</sub>	16
3	6	12	16 <sup>3</sup> / <sub>8</sub>	18 <sup>1</sup> / <sub>4</sub>
4	6	12	18 <sup>3</sup> / <sub>8</sub>	20
5	6	12	20 <sup>1</sup> / <sub>16</sub>	22
6	5 <sup>3</sup> / <sub>4</sub>	14	14 <sup>1</sup> / <sub>8</sub>	16
7	7	14	16 <sup>3</sup> / <sub>8</sub>	18 <sup>1</sup> / <sub>4</sub>
8	7	14	18 <sup>3</sup> / <sub>8</sub>	20
9	7	14	20 <sup>1</sup> / <sub>16</sub>	22
10	6 <sup>1</sup> / <sub>2</sub>	14	22 <sup>5</sup> / <sub>8</sub>	24
11	6 <sup>1</sup> / <sub>2</sub>	14	25 <sup>1</sup> / <sub>4</sub>	26
^ 12	9 <sup>1</sup> / <sub>2</sub>	19	18 <sup>3</sup> / <sub>8</sub>	20
^ 13	9 <sup>1</sup> / <sub>2</sub>	19	20 <sup>1</sup> / <sub>16</sub>	22
^ 14	9	19	22 <sup>5</sup> / <sub>8</sub>	24
15	9 <sup>1</sup> / <sub>2</sub>	19	25 <sup>1</sup> / <sub>4</sub>	26
^ 16	10	19	18 <sup>3</sup> / <sub>8</sub>	20
^ 17	10	19	20 <sup>1</sup> / <sub>16</sub>	22
^ 18	10	19	20 <sup>1</sup> / <sub>16</sub>	22
^ 19	10	19	22 <sup>5</sup> / <sub>8</sub>	24
^ 20	10	19	25 <sup>1</sup> / <sub>4</sub>	26

continued

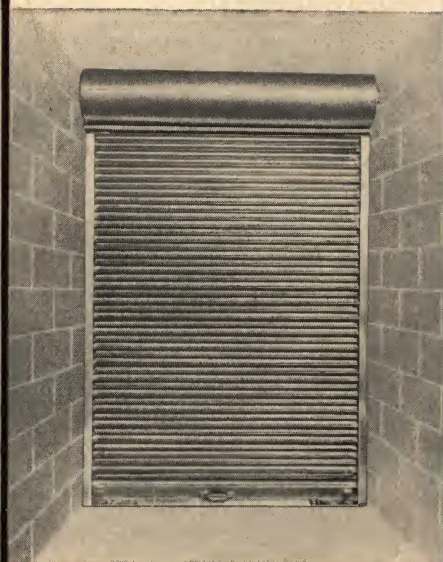


## condensed specifications

### ■ types push-up type N10 face mounted



### push-up type J10 jamb mounted



### chain type N20 face mounted



## ■ specifications

### type number N10

Doors shall be type N10 conforming to Balfour standard specifications, or approved equal. Curtains shall be cold rolled steel having 1.25 oz. pure zinc coating per sq. ft. of flat metal as per ASTM A93-52T. Slats shall be bonderized for paint adhesion. Counterbalance shall be of helical torsion springs housed in steel pipe and anchored to single torsion rod. Pipe deflection shall be .03" per ft. maximum. Guides and brackets shall be of steel. Hood shall be 24 U. S. gauge sheet metal. Non-galvanized ferrous surfaces shall have a shop coat of paint. Guarantee shall apply to defective materials and workmanship for a period of one year.

### type J10

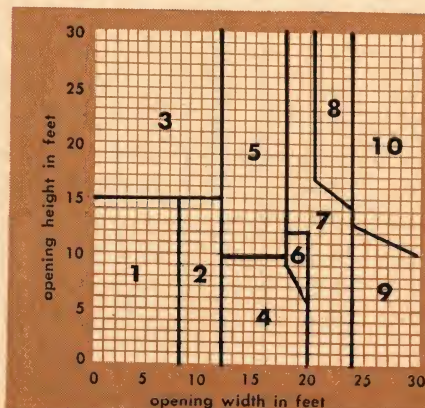
Doors shall be type J10 conforming to Balfour standard specifications, or approved equal. Curtains shall be cold rolled steel having 1.25 oz. pure zinc coating per sq. ft. of flat metal as per ASTM A93-52T. Slats shall be bonderized for paint adhesion. Counterbalance shall be of helical torsion springs housed in steel pipe and anchored to single torsion rod. Pipe deflection shall be .03" per ft. maximum. Guides and brackets shall be of steel. Hood shall be 24 U.S. Gauge sheet metal. Non-galvanized ferrous surfaces shall have a shop coat of paint. Guarantee shall apply to defective materials and workmanship for a period of one year.

### type N20

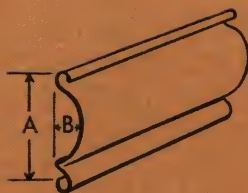
Doors shall be type N20 conforming to Balfour standard specifications, or approved equal. Curtains shall be cold rolled steel having 1.25 oz. pure zinc coating per sq. ft. of flat metal as per ASTM A93-52T. Slats shall be bonderized for paint adhesion. Counterbalance shall be of helical torsion springs housed in steel pipe and anchored to single torsion rod. Pipe deflection shall be .03" per ft. maximum. Guides and brackets shall be of steel. Hood shall be 24 U.S. gauge sheet metal. Non-galvanized ferrous surfaces shall have a shop coat of paint. Guarantee shall apply to defective materials and workmanship for a period of one year.

## ■ construction details

### slat-guide selection chart

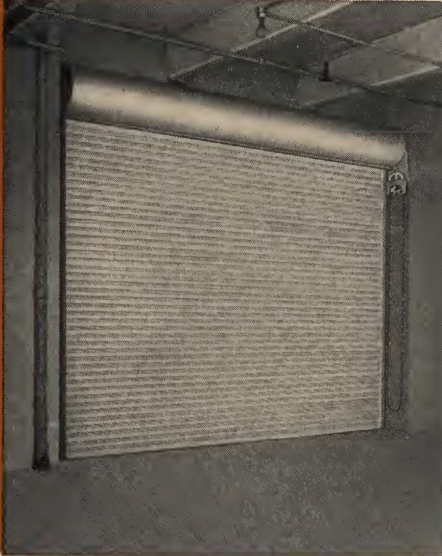


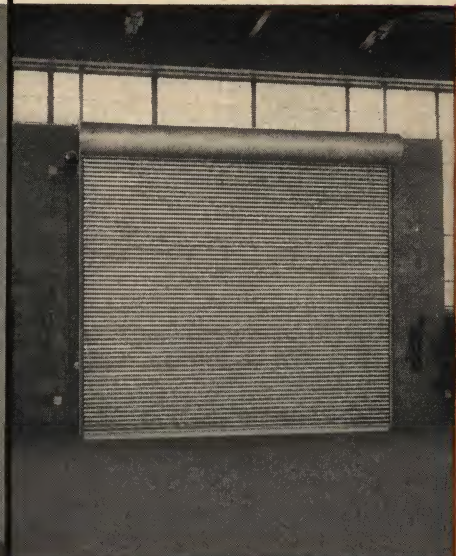
### slat



area number	slat type	gage	A	B
1, 2, 3	S	20	1 7/8	17/32
4, 5, 6	L	20	2 3/4	25/32
7, 8, 9, 10	L	18	2 3/4	25/32



**chain**  
**type J20**  
**jamb mounted**

**crank**  
**type N30**  
**face mounted**

**motor**  
**type N40**  
**face mounted**

**type J20**

Doors shall be type J20 conforming to Balfour standard specifications, or approved equal. Curtains shall be cold rolled steel having 1.25 oz. pure zinc coating per sq. ft. of flat metal as per ASTM A93-52T. Slats shall be bonderized for paint adhesion. Counterbalance shall be of helical torsion springs housed in steel pipe and anchored to single torsion rod. Pipe deflection shall be .03" per ft. maximum. Guides and brackets shall be of steel. Hood shall be 24 U.S. gauge sheet metal. Non-galvanized ferrous surfaces shall have a shop coat of paint. Guarantee shall apply to defective materials and workmanship for a period of one year.

**type N30**

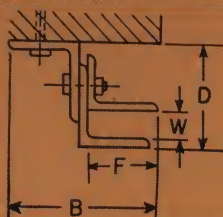
Doors shall be type N30 conforming to Balfour standard specifications, or approved equal. Curtains shall be cold rolled steel having 1.25 oz. pure zinc coating per sq. ft. of flat metal as per ASTM A93-52T. Slats shall be bonderized for paint adhesion. Counterbalance shall be of helical torsion springs housed in steel pipe and anchored to single torsion rod. Pipe deflection shall be .03" per ft. maximum. Guides and brackets shall be of steel. Hood shall be 24 U.S. gauge sheet metal. Non-galvanized ferrous surfaces shall have a shop coat of paint. Guarantee shall apply to defective materials and workmanship for a period of one year.

**type N40**

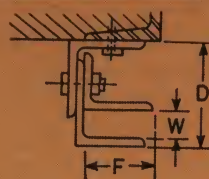
Doors shall be type N40 conforming to Balfour standard specifications, or approved equal. Curtains shall be cold rolled steel having 1.25 oz. pure zinc coating per sq. ft. of flat metal as per ASTM A93-52T. Slats shall be bonderized for paint adhesion. Counterbalance shall be of helical torsion springs housed in steel pipe and anchored to single torsion rod. Pipe deflection shall be .03" per ft. maximum. Guides and brackets shall be of steel. Hood shall be 24 U.S. gauge sheet metal. Motor operator shall be of sufficient capacity, shall have emergency chain operation with safety mechanical electrical interlock, rotary type limit switch, and shall be furnished with 3 button push button station and magnetic reversing starter. Non-galvanized ferrous surfaces shall have a shop coat of paint. Guarantee shall apply to defective materials and workmanship for a period of one year.

**guides**
**Z type guide**

Z type guide is method for connection to masonry or wood jambs


**E type guide**

E type guide is method for connection to steel or alternate for wood jambs



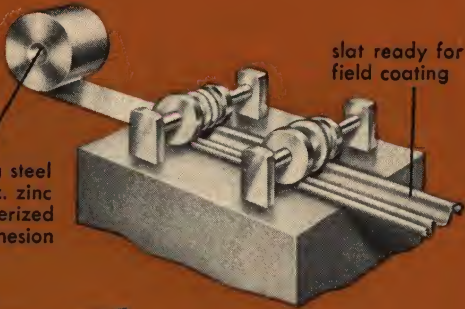
area number	guide gage	dimensions in inches			
		B	D	F	W
1	G-2	4 $\frac{11}{16}$	3 $\frac{1}{2}$	2	$\frac{7}{8}$
2	G-2 $\frac{1}{2}$	5 $\frac{3}{16}$	3 $\frac{1}{2}$	2 $\frac{1}{2}$	$\frac{7}{8}$
3	GS-2 $\frac{1}{2}$	5 $\frac{3}{16}$	4 $\frac{3}{4}$	2 $\frac{1}{2}$	$\frac{7}{8}$
4	GL-3	5 $\frac{11}{16}$	3 $\frac{5}{8}$	3	1 $\frac{1}{8}$
5	G-3	6 $\frac{3}{16}$	4 $\frac{3}{4}$	3	1 $\frac{1}{8}$
6, 7	G-3 $\frac{1}{2}$	6 $\frac{3}{4}$	4 $\frac{3}{4}$	3 $\frac{1}{2}$	1 $\frac{1}{8}$
8	GW-3	6 $\frac{1}{2}$	4 $\frac{3}{4}$	3 $\frac{1}{4}$	1 $\frac{1}{8}$
9	GW-3 $\frac{1}{2}$	6 $\frac{3}{4}$	4 $\frac{3}{4}$	3 $\frac{1}{2}$	1 $\frac{1}{8}$
10	GW-4	7	5	3 $\frac{3}{4}$	1 $\frac{1}{8}$



# standard specifications

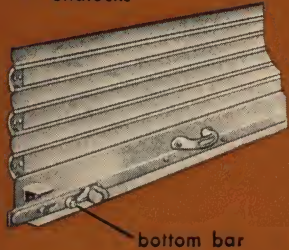
## 8.2 curtain

### slats



slat ready for field coating

### endlocks



bottom bar

### windlocks

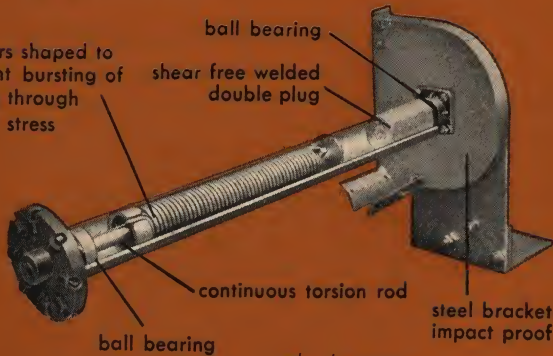


## 8.3 barrel

## 8.4 spring counterbalance

## 8.5 brackets

anchors shaped to prevent bursting of spring through radial stress



ball bearing

shear free welded double plug

continuous torsion rod

ball bearing

steel bracket impact proof

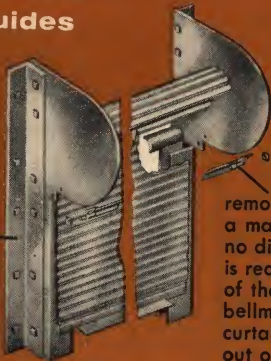
pitch angle mathematically controlled to reduce wear and ease operation



## 8.5 brackets

## 8.6 guides

continuous back angle distributes load on wall throughout entire length of guide



removable bellmouth is a maintenance panacea. no dismantling of guide is required. a few turns of the nut and the front bellmouth comes off. curtain may now slip out of guides to be repaired

**8.1 general** Doors shall be of the service type Rolling Steel Doors, mounted (on the face of the wall) (between the jambs), and shall be operated by (hand by means of handles placed on the bottom bar) (endless chain) (hand crank) (motor connected to speed reducer). The doors shall be as manufactured by Walter Balfour & Co., Inc., 404 Oakland St., Brooklyn, N. Y., or approved equal.

**8.2 curtain** The curtain shall consist of interlocking slats assembled to present a water shedding surface on the weather side, bottom bar made of two steel angles of size sufficient to add rigidity to curtain. The curtain shall be provided with malleable iron endlocks, fastened to alternate slats by means of two rivets per lock. Locks shall prevent slats from moving laterally and from wearing at surfaces riding in guides. Curtains over 340 sq. ft. in area but not less than 20 1/2 ft. in width, and all curtains above 24 ft. in width shall be provided with malleable iron windlocks riveted to slats with three rivets per lock and spaced at 2 ft. interval along the curtain height. The slats shall be of open hearth copper bearing cold rolled steel, hot dipped galvanized before being formed, shall be free from sharp bends and conform to the following:

opening size	slat type	metal gage U.S.G., min.	metal thickness nominal in.	slat width min., in.	depth of corrugations min., in.
refer to chart on page 6	"S"-20	20	.036	1 7/8	17/32
	"L"-20	20	.036	2 3/4	25/32
	"L"-18	18	.050	2 3/4	25/32

Galvanized coating shall be one and one-quarter ounces of high grade zinc per sq. ft. of flat metal, shall be free from blisters and imperfections and shall conform to ASTM Standards Serial Designation No. A93-52T. All galvanized slats shall be treated with a hot balanced zinc phosphate solution containing nitrate and rinsed first in clear water, then in a mild chromic acid solution, and then dried to provide lasting paint adhesion.

**8.3 barrel** The barrel shall be a steel pipe whose deflection under load shall not exceed 0.03 inch per ft. of span, shall have on each end a steel plug welded to it so as to eliminate failures characteristic of pinned or screwed plugs, and shall be equipped, whenever allowed by the design, with spiral shaped cast iron rings which will provide for easy and silent operation. The rings shall have a cavity on the surface formed to accommodate the top slat of curtain.

**8.4 spring counterbalance** The curtain shall be counterbalanced at every point in its travel by means of helical torsion springs placed inside the barrel and fixed on each end to anchors, designed to prevent internal collapsing of springs at contact points. The anchors shall transfer the full spring load to a single torsion rod equipped with a balancing wheel placed on the outside of one of the brackets. Wheel shall be used to apply the initial spring load, and to hold the torsion rod fixed. Springs shall be of tempered steel wire, cold formed and heat treated in a manner so as to retain the most desirable residual stress.

**8.5 brackets** The brackets shall be made of steel plate, shall be connected to the guides to form a single structural element, and shall have the inside surface flush with guide groove. Each bracket shall be provided with two bellmouths flush mounted with guide groove. The front bellmouths shall be removable to permit rapid sectional installation and replacement of curtain.

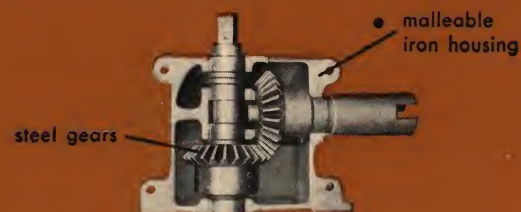
**8.6 guides** Guides shall be of structural steel angles, and shall be constructed in accordance with Chart and details on Pages 6 and 7.



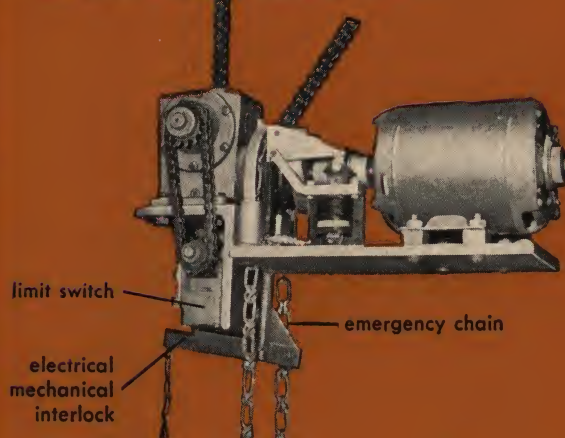
## 9.1 locking devices



## 9.2 crank box



## 9.3 motor operator unit



## 9.10 guarantee



**9.1 locking devices** Provision for padlocking shall be made as follows: push-up doors shall have slide bolts on the bottom bar. Chain doors shall have chain holder on the operator side guide. Crank doors shall have disk on operating shaft.

**9.2 crank box** Crank box for crank doors shall consist of cut tooth steel bevel gears, self-lubricating bronze sleeve bearings, and weather sealed, shock proof, malleable iron housings.

**9.3 motor operator units** Each unit shall consist of a motor, directly connected to a speed reducer by means of flexible coupling, a solenoid activated clutch-brake, a limit switch and an endless chain for emergency operation. All electrical equipment shall conform to NEMA standards. The motor shall be of high starting torque and of sufficient capacity to operate the door at a speed not less than  $\frac{2}{3}$  of a foot per second, shall be suitable for operation on the current characteristics available at place of installation, and shall have overload protection. Each unit shall be provided with a magnetic across the line starter having thermal overload protection, and unless otherwise specified shall be equipped with push buttons marked "Open," "Close," and "Stop." The limit switch shall be of the adjustable screw type, and shall be so mounted as not to have its timing affected when the door changes from motor to manual operation. The speed reducer shall be of the worm gear type, completely housed and running in an oil bath, shall have special nickel phosphor bronze hobbled worm gear and special steel cut worm, shall satisfy the AGMA Standards, and shall be of sufficient capacity for the use intended. Emergency operation shall be through auxiliary hand chains extending to a point easily accessible from the floor, and mounted not to protrude more than 12" all along the wall. Drive from reducer to door shaft shall be through roller chain operating on cut tooth steel sprockets. Each unit shall be provided with electric interlock so the motor cannot be started when door is being operated by hand, and shall be constructed so manual operation may be effected even when motor is disconnected from the unit. Note: Electric wiring, and conduit for hooking up motor operator unit and all other electrical equipment not covered by this paragraph shall not be furnished by the door manufacturer.

**9.4 bearings** All motor operated doors and all doors over 200 sq. ft. in area shall have self-aligning precision ball bearings of sealed cartridge type. Other doors shall be equipped with self-aligning, self-lubricating bronze sleeve bearings.

**9.5 gears** Gears, . . . , except those which are part of the motor unit, shall be of high tensile gray iron castings conforming to Federal Specification QQ-1-652, and shall be made from machine cut patterns.

**9.6 hoods** Hoods shall be made of hot dipped galvanized sheet metal not lighter than 24 U.S. gauge, shall be formed to contour the supporting brackets, and shall have stiffening beads or flanges. Hoods for openings 18 ft. or more in width shall have intermediate supporting brackets.

**9.7 workmanship** Workmanship shall be of the highest grade and in accordance with the best practice for this type of equipment.

**9.8 painting** All ferrous metal surfaces (except faying surfaces, work parts of machinery, galvanized surfaces and other surfaces not normally painted in good commercial practice) shall receive one coat of rust inhibitive metal primer.

**9.9 erection** Erection shall conform to the Standards of Walter Balfour & Co., Inc., and shall be done by the company representatives.

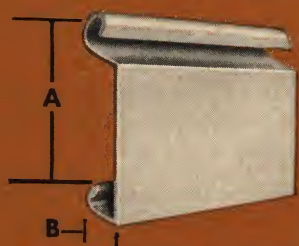
**9.10 guarantee** Doors shall be guaranteed against defective materials and workmanship for a period of one year.

<sup>^</sup> patented



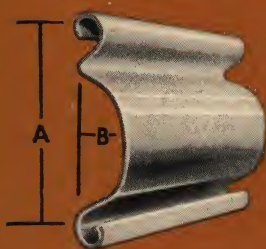
## optional materials and accessories

### 10.1 Delia and Alastor slats



Slat	A	B	thickness
DELIA	1 $\frac{1}{8}$ "	$\frac{1}{2}$ "	.052
ALASTOR	2 $\frac{1}{2}$ "	$\frac{3}{8}$ "	.072

### 10.2 standard shape slats

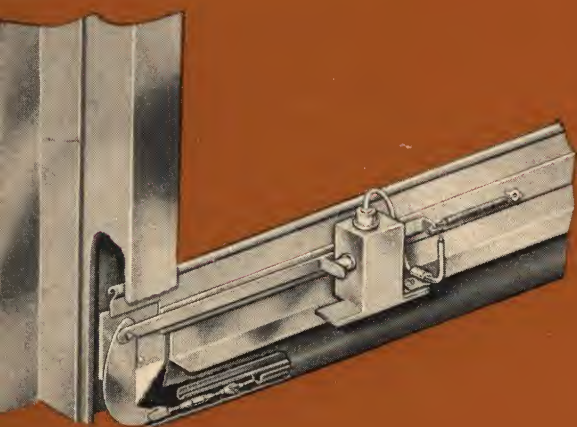


Slat	A	B
"S"	1 $\frac{7}{8}$ "	1 $\frac{1}{32}$ "
"L"	2 $\frac{3}{4}$ "	2 $\frac{5}{32}$ "

### 10.4 vision panel



### 10.5 safety bottom bar



### DELIA slats ALASTOR slats } specifications

**10.1 DELIA and ALASTOR** are interlocking extruded aluminum slats formed so that a suspended curtain will lie in a vertical plane, presenting on the outside a flat surface with sharp, straight, uniformly spaced edges, and on the inside a seemingly single ribbed sheet of impressive lines. Balfour has originated these slats for architectural applications of higher order, where both strength and decorative expression are required. Slat material is 63S-T6 aluminum. Size and gauge are as shown on the left. Finish is either mill finish or a dense, thick alumilite coating for protection against weathering and wear. Coating may be plain or colored such as architectural gray, gold or black.

**10.2 standard shape slats** "S" and "L" slats are cold rolled interlocking slats of dimensions as shown on the left. Slat material may be as follows:

- (1) Armco Aluminized Steel, Type 2. This is recommended where strong protection against corrosion is required and yet no paint is used. Aluminized steel possesses the strength of steel; has at least 3 times the corrosion resistance of a galvanized sheet with commercial weight zinc coating; requires no painting; resists higher temperatures and longer heat exposure than galvanized steel. The "S" slat is available in 20 U.S. gauge, and the "L" slat in 20 and 18 U.S. gauges.
- (2) 52 S-H 32 Aluminum in mill finish. Aluminum slats are used where weight and surface properties are a consideration. Slat thickness is .040" for the "S" slat, and .051" & .065" for the "L" slat.
- (3) 302 Stainless steel in #2 mill finish. This is intended for architectural applications or for satisfying requirements of particular atmospheres. The "S" slat is furnished in 20 U.S. gauge. The "L" slat in 20 and 18 U.S. gauges.
- (4) Galvanized steel in 16 U.S. gauge. This is used for excessively wide openings, and for openings in localities where wind load requirements are abnormally high. Galvanized coating is 1.25 oz. zinc per sq. ft. of flat metal as per ASTM A93-52T.

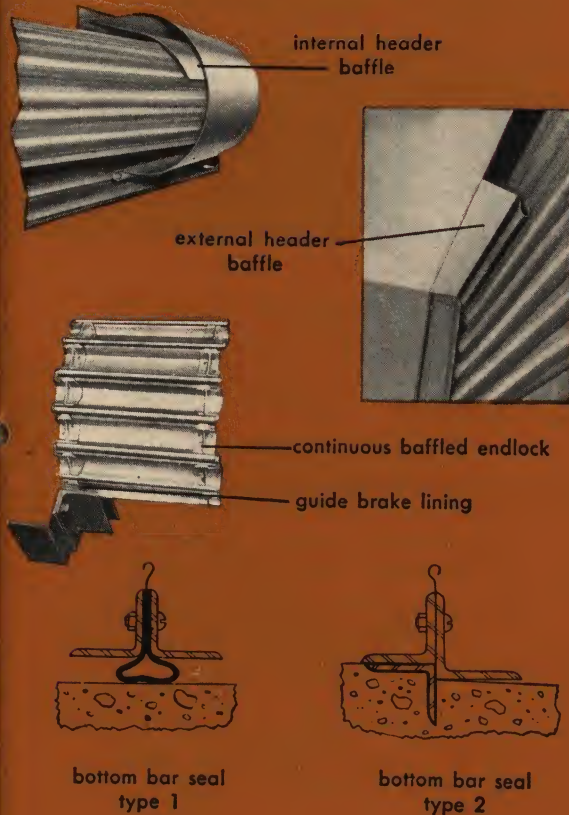
**10.3 guides and hoods** Guides and hoods may be furnished in aluminum and in stainless steel.

**10.4 vision panel** Vision panel is a window applied to the curtain to enable to see and to admit light. Panel is approximately 18" x 18" and consists of  $\frac{3}{8}$ " thick plexiglass strips mounted on slats with weatherproof connections. Plexiglass is of the colorless, transparent type with high impact and weather resistance.

**10.5 safety bottom bar** Safety bottom bar is a safety device applied to the bottom bar by means of which a power operated curtain may either stop as it is moving downward or reverse its travel and return to its fully open position. Safety bar consists of a 7 x 7 stainless steel aircraft cable extending the full length of the bottom bar and housed in a neoprene weatherseal connected to bottom bar. Cable operates a switch located on the bottom bar and forming part of the control circuit. Cable is mounted to remain sensitive to any minimum force applied to it from any direction.



## ■ 11.2 weather stripping



## ■ 11.5 wicket door



## ■ 11.6 mullions



**11.1 baked on enamel** Curtains which require painting are furnished with 2224 Grey vinyl forming enamel coating applied prior to roll forming. This coating resists the action of water, weather and chemicals. Salt spray tests have shown that this coating practically doubles the corrosion resistive life of a galvanized surface.

**11.2 weatherstripping** Various provisions are available to secure higher resistance against air infiltration and more effective weatherseal. These may be used individually or in combination as required.

**11.2.1 internal header baffle** Internal header baffle is a hinged 24 gauge galvanized sheet metal cover resting on curtain coil at all times and preventing air passage between hood and curtain coils.

**11.2.2 external header baffle** This baffle consists of a galvanized sheet metal closure piece sealing the gap between curtain and lintel. The sheet metal piece has a neoprene strip fastened along the edge contacting the curtain.

**11.2.3 continuous baffled endlocks** Baffled endlocks are of malleable iron and have a rib on the concave side to provide a continuous contacting edge between curtain and guide. Locks are riveted to each slat by means of two rivets per lock.

**11.2.4 guide brake lining** Brake lining consists of .020" thick spring phosphor bronze strip and  $\frac{3}{16}$ " thick woven brake lining mounted in guide groove. This arrangement together with the baffled endlocks is most effective against air infiltration.

**11.2.5 bottom bar seal type I** Seal Type I consists of a neoprene loop suspended between the two bottom bar angles.

**11.2.6 bottom bar seal type II** Seal type II is an arrangement achieved by stepping the bottom bar angles.

**11.3 locking devices** Motor operated doors may have key-operated push button stations and a padlocking chain holder on the operator side guide for locking emergency chain.

**11.4 windlocks** Windlocks are available as an optional item on curtains not covered by Balfour standard service door specifications.

**11.5 wicket door** Wicket door is a built-in pass door which allows convenient access to the building. The door is Kalamein type, with 4" x 4" butt hinges, and is provided with a tubular cylinder lock set. Door frame is steel and is hinged on main door guides.

**11.6 mullions** At times excessively wide doors may not be practical, yet the entire, free width of the opening must be available for use. In such cases multiple doors still may be installed, provided the adjacent door guides are built into either a removable mullion or a sliding mullion. A removable mullion has limitations imposed by its weight. A sliding mullion is easily operable, and is furnished with a roller carriage and track consisting of a steel beam. Both mullions have provisions for being locked in place when functioning as door guides.



# Balfour

fire doors provide  
your building with

are approved by

N. Y. CITY BOARD OF STANDARDS  
and APPEALS

UNDERWRITERS' LABORATORIES, INC.

FACTORY MUTUALS

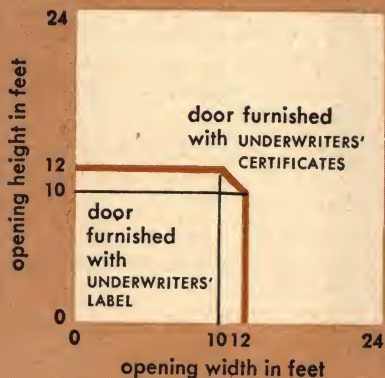
UNDERWRITERS' STANDARDS

AUTOMATIC DOORS  
(self closing)

anchor bolts shall extend through the  
wall. Local authorities may allow guide  
bolts only to be tapped into steel jambs

AUTOMATIC or NON-AUTOMATIC DOORS  
(self-closing) (not self-closing)

3 HOUR  
**CLASS A**  
fire walls



1½ HOUR  
**CLASS B**  
vertical shafts

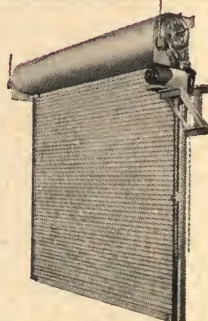
¾ HOUR  
**CLASS C**  
corridors

1½ HOUR  
**CLASS D**  
exterior walls

## type UN40 power operated

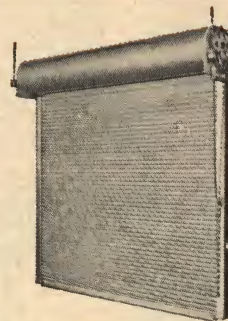
interior face mounted operator  
on wall

**note:** this door is in accordance  
with UNDERWRITERS'  
STANDARDS but cannot  
be furnished with  
UNDERWRITERS' LABEL



## type UN20 chain operated

interior face mounted



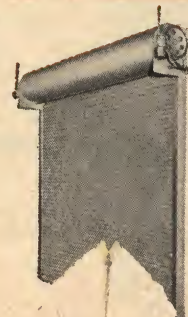
## type UN30 crank operated

interior face mounted



## type UN10 push-up

interior face mounted





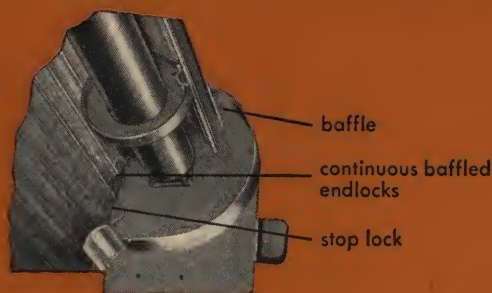


standard specifications	page 13
installation clearances	pages 14-15
window fire shutter	pages 14-15

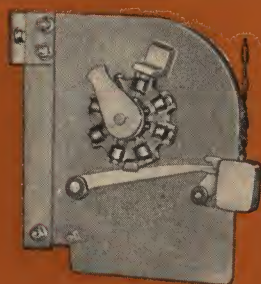
- protection against fire
- ordinary service as normal doors

## standard specifications

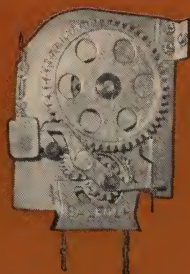
### 13.2 curtain 13.7 baffle



### 13.3 spring counter balance



### 13.9 governor



governor in  
normal operation



governor after  
automatic release

### 13.13 guarantee



**13.1 general** Fire Doors shall be (automatic) (non-automatic), Class —, and shall have (chain) (crank) (push up) type operation. Doors shall be furnished with Underwriters' (Label) (Certificate) and shall be as manufactured by Walter Balfour & Co., Inc.

**13.2 curtain** Curtain shall consist of roll formed interlocking steel slats, bottom bar made up of two steel angles and steel reinforced top slat. Slats shall be not lighter than 20 U.S. gauge, hot dipped galvanized with 1.25 ounce per sq. ft. zinc coating conforming to A93-52T of the ASTM. Curtain shall be provided with endlocks as required by the Underwriters', and with two stoplocks located so that curtain will retain its full closed position in case of relaxation of springs under fire.

**13.3 spring counterbalance** Counterbalance shall consist of oil tempered and heat treated steel helical torsion springs housed in steel pipe. Springs shall be anchored to a torsion rod extending the full length of springs. Torsion rod shall have fixed on it a single balancing wheel placed on the outside of one of the brackets. Steel pipe shall not exceed 0.03" per ft. deflection, and shall have cast iron rings fastened to it.

**13.4 brackets** Brackets shall be of steel plate.

**13.5 guides** Guides shall be  $\frac{3}{16}$ " minimum structural steel angles assembled with provision for expansion.

**13.6 bearings** Bearings shall be lubricated-for-life self-aligning ball bearings.

**13.7 hood** Hood shall be galvanized sheet metal, 24 gauge minimum.

**13.8 baffle** Baffle shall be 24 gauge sheet metal. Normally it shall be held away from the coil. Upon temperature rise it shall close on the coil thus preventing passage of flame or smoke.

**13.9 automatic closing devices** Devices shall consist of adjusting-release mechanism actuated by fusible links and coordinated with governor. Mechanism shall force curtain downward and permit lifting of the curtain by hand after automatic drop, and again allow automatic closure after emergency exit.

**13.10 governor** Governor shall be escapement type capable of limiting curtain drop to an even slow speed to avoid injury and impact. Governor shall be inoperative when door is in normal operation.

**13.11 painting** Painting shall consist of a shop coat of rust inhibiting primer applied to ferrous surfaces.

**13.12 erection** Erection shall be done by Walter Balfour & Co., Inc. or its representative.

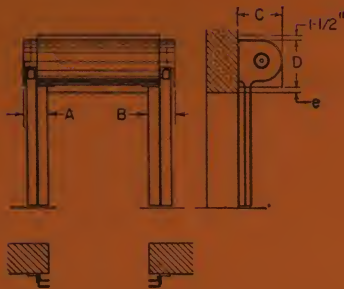
**13.13 guarantee** Guarantee shall cover defective material and workmanship for a period of one year.



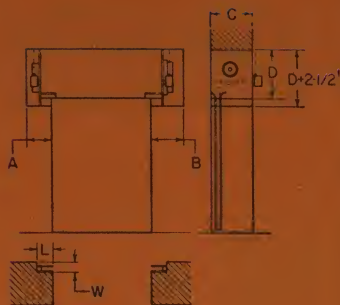
# fire door installation clearances

## ■ types

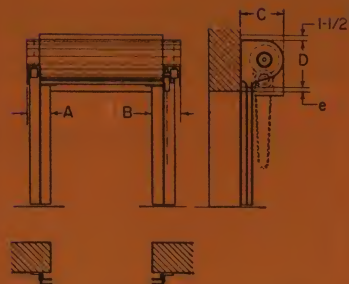
**push-up  
type UN10  
face mounted**



**push-up  
type UJ10  
jamb mounted**



**chain  
type UN20  
face mounted**



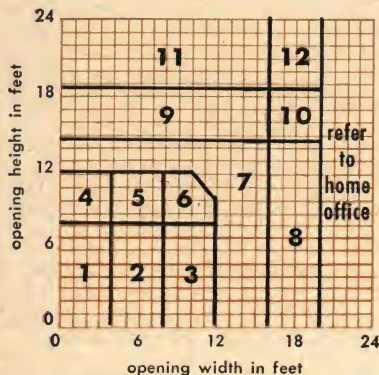
- note:** 1 data on pages 14 and 15 apply to doors for interior location only.  
2 consult with Home Office on doors for exterior walls and power operated doors.  
3 push-up doors are not recommended for openings above 80 square feet.

## ■ clearances [dimensions in inches]

area numbers	A	B	C	D
1	6 <sup>5</sup> / <sub>8</sub>	6 <sup>1</sup> / <sub>8</sub>	13 <sup>3</sup> / <sub>8</sub>	14 <sup>3</sup> / <sub>4</sub>
2	7 <sup>1</sup> / <sub>8</sub>	6 <sup>5</sup> / <sub>8</sub>	13 <sup>5</sup> / <sub>8</sub>	14 <sup>3</sup> / <sub>4</sub>

area numbers	A	B	C	D
1	7 <sup>5</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>8</sub>	13 <sup>1</sup> / <sub>2</sub>	17 <sup>1</sup> / <sub>2</sub>
2	8 <sup>1</sup> / <sub>8</sub>	7 <sup>5</sup> / <sub>8</sub>	13 <sup>1</sup> / <sub>2</sub>	17 <sup>1</sup> / <sub>2</sub>

## ■ selection chart [all required clearances are keyed to area numbers on this chart]



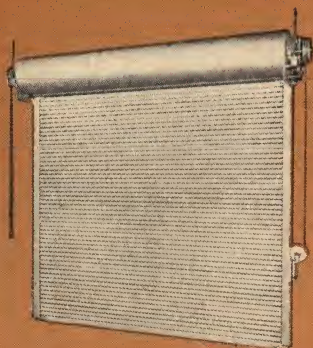
area numbers	header dimension "e"
1-6	1 <sup>1</sup> / <sub>2</sub> "
7-12	1 <sup>1</sup> / <sub>2</sub> "

between jamb guide groove clearances

area numbers	L	W
1, 4	4"	3"
2, 5	4 <sup>1</sup> / <sub>2</sub> "	3"
3, 6	5"	3"
7, 9, 11	5 <sup>1</sup> / <sub>2</sub> "	4"
8, 10, 12	6"	4"

area numbers	A	B	C	D
1	6 <sup>5</sup> / <sub>8</sub>	8	13 <sup>5</sup> / <sub>8</sub>	14 <sup>3</sup> / <sub>4</sub>
2	7 <sup>1</sup> / <sub>8</sub>	8 <sup>1</sup> / <sub>2</sub>	13 <sup>5</sup> / <sub>8</sub>	14 <sup>3</sup> / <sub>4</sub>
3	7 <sup>5</sup> / <sub>8</sub>	9	13 <sup>5</sup> / <sub>8</sub>	14 <sup>3</sup> / <sub>4</sub>
4	6 <sup>5</sup> / <sub>8</sub>	8	16 <sup>1</sup> / <sub>2</sub>	17 <sup>3</sup> / <sub>4</sub>
5	7 <sup>1</sup> / <sub>8</sub>	8 <sup>1</sup> / <sub>2</sub>	16 <sup>1</sup> / <sub>2</sub>	17 <sup>3</sup> / <sub>4</sub>
6	7 <sup>5</sup> / <sub>8</sub>	9	16 <sup>1</sup> / <sub>2</sub>	17 <sup>3</sup> / <sub>4</sub>
7	11 <sup>1</sup> / <sub>2</sub>	11	19 <sup>1</sup> / <sub>8</sub>	19
8	12	11 <sup>1</sup> / <sub>2</sub>	19 <sup>1</sup> / <sub>8</sub>	19
9	11 <sup>1</sup> / <sub>2</sub>	11	20 <sup>3</sup> / <sub>8</sub>	21
10	12	11 <sup>1</sup> / <sub>2</sub>	20 <sup>3</sup> / <sub>8</sub>	21
11	11 <sup>1</sup> / <sub>2</sub>	11	22 <sup>5</sup> / <sub>8</sub>	24
12	12	11 <sup>1</sup> / <sub>2</sub>	22 <sup>5</sup> / <sub>8</sub>	24

## ■ Balfour window fire shutter

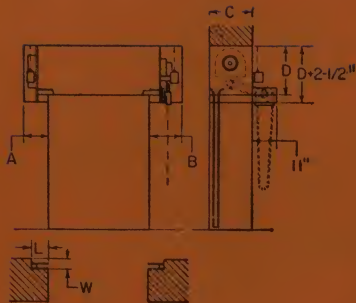
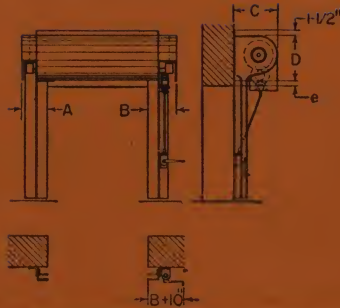
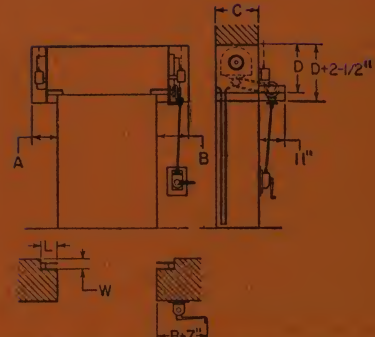


### specifications

The specifications for the Balfour fire door shall apply to the Balfour fire shutter except as herein modified:

- a Governor shall remain operative at all times.
- b Shutter shall be provided with test release chain, mechanism resetting chain and gearless rewinding mechanism. These devices shall permit, respectively, to test curtain drop, reset dropping mechanism and crank curtain to its fully open position.

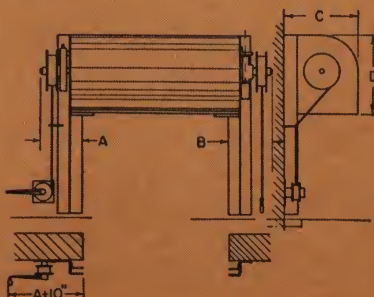


**chain  
type UJ20  
jamb mounted**

**crank  
type UN30  
face mounted**

**crank  
type UJ30  
jamb mounted**


area numbers	A	B	C	D
1	7 <sup>5</sup> / <sub>8</sub>	9	13 <sup>1</sup> / <sub>2</sub>	17 <sup>1</sup> / <sub>2</sub>
2	8 <sup>1</sup> / <sub>8</sub>	9 <sup>1</sup> / <sub>2</sub>	13 <sup>1</sup> / <sub>2</sub>	17 <sup>1</sup> / <sub>2</sub>
3	8 <sup>5</sup> / <sub>8</sub>	10	13 <sup>1</sup> / <sub>2</sub>	17 <sup>1</sup> / <sub>2</sub>
4	7 <sup>5</sup> / <sub>8</sub>	9	16	19 <sup>1</sup> / <sub>2</sub>
5	8 <sup>1</sup> / <sub>8</sub>	9 <sup>1</sup> / <sub>2</sub>	16	19 <sup>1</sup> / <sub>2</sub>
6	8 <sup>5</sup> / <sub>8</sub>	10	16	19 <sup>1</sup> / <sub>2</sub>
7	11	11 <sup>1</sup> / <sub>2</sub>	20	31
8	11 <sup>1</sup> / <sub>2</sub>	12	20	31
9	11	11 <sup>1</sup> / <sub>2</sub>	21	33
10	11 <sup>1</sup> / <sub>2</sub>	12	21	33
11	11	11 <sup>1</sup> / <sub>2</sub>	24	35
12	11 <sup>1</sup> / <sub>2</sub>	12	24	35

area numbers	A	B	C	D
1	6 <sup>5</sup> / <sub>8</sub>	8	13 <sup>5</sup> / <sub>8</sub>	14 <sup>3</sup> / <sub>4</sub>
2	7 <sup>1</sup> / <sub>8</sub>	8 <sup>1</sup> / <sub>2</sub>	13 <sup>5</sup> / <sub>8</sub>	14 <sup>3</sup> / <sub>4</sub>
3	7 <sup>5</sup> / <sub>8</sub>	9	13 <sup>5</sup> / <sub>8</sub>	14 <sup>3</sup> / <sub>4</sub>
4	6 <sup>5</sup> / <sub>8</sub>	8	16 <sup>1</sup> / <sub>2</sub>	17 <sup>3</sup> / <sub>4</sub>
5	7 <sup>1</sup> / <sub>8</sub>	8 <sup>1</sup> / <sub>2</sub>	16 <sup>1</sup> / <sub>2</sub>	17 <sup>3</sup> / <sub>4</sub>
6	7 <sup>5</sup> / <sub>8</sub>	9	16 <sup>1</sup> / <sub>2</sub>	17 <sup>3</sup> / <sub>4</sub>
7	11 <sup>1</sup> / <sub>2</sub>	11	19 <sup>1</sup> / <sub>8</sub>	19
8	12	11 <sup>1</sup> / <sub>2</sub>	19 <sup>1</sup> / <sub>8</sub>	19
9	11 <sup>1</sup> / <sub>2</sub>	11	20 <sup>3</sup> / <sub>8</sub>	21
10	12	11 <sup>1</sup> / <sub>2</sub>	20 <sup>3</sup> / <sub>8</sub>	21
11	11 <sup>1</sup> / <sub>2</sub>	11	22 <sup>5</sup> / <sub>8</sub>	24
12	12	11 <sup>1</sup> / <sub>2</sub>	22 <sup>5</sup> / <sub>8</sub>	24

area numbers	A	B	C	D
1	7 <sup>5</sup> / <sub>8</sub>	9	13 <sup>1</sup> / <sub>2</sub>	17 <sup>1</sup> / <sub>2</sub>
2	8 <sup>1</sup> / <sub>8</sub>	9 <sup>1</sup> / <sub>2</sub>	13 <sup>1</sup> / <sub>2</sub>	17 <sup>1</sup> / <sub>2</sub>
3	8 <sup>5</sup> / <sub>8</sub>	10	13 <sup>1</sup> / <sub>2</sub>	17 <sup>1</sup> / <sub>2</sub>
4	7 <sup>5</sup> / <sub>8</sub>	9	16	19 <sup>1</sup> / <sub>2</sub>
5	8 <sup>1</sup> / <sub>8</sub>	9 <sup>1</sup> / <sub>2</sub>	16	19 <sup>1</sup> / <sub>2</sub>
6	8 <sup>5</sup> / <sub>8</sub>	10	16	19 <sup>1</sup> / <sub>2</sub>
7	11	11 <sup>1</sup> / <sub>2</sub>	20	31
8	11 <sup>1</sup> / <sub>2</sub>	12	20	31
9	11	11 <sup>1</sup> / <sub>2</sub>	20 <sup>3</sup> / <sub>8</sub>	33
10	11 <sup>1</sup> / <sub>2</sub>	12	20 <sup>3</sup> / <sub>8</sub>	33
11	11	11 <sup>1</sup> / <sub>2</sub>	22 <sup>5</sup> / <sub>8</sub>	35
12	11 <sup>1</sup> / <sub>2</sub>	12	22 <sup>5</sup> / <sub>8</sub>	35

**underwriters' labeled**
**type SN interior face mounted**

**installation clearances**

opening height		up to 8'				up to 12'			
dimensions		A	B	C	D	A	B	C	D
opening width 0 ft.	to 4'	8½	9	13⅝	14¾	8½	9	16½	17¾
	to 8'	9	9½	13⅝	14¾	9	9½	16½	17¾
	to 12'	9½	10	13⅝	14¾	9½	10	16½	17¾

note: consult Home Office for details on exterior and jamb mounted shutters

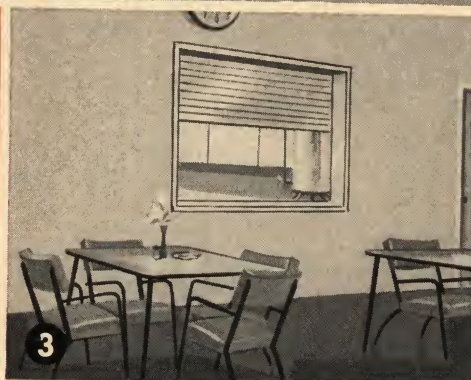
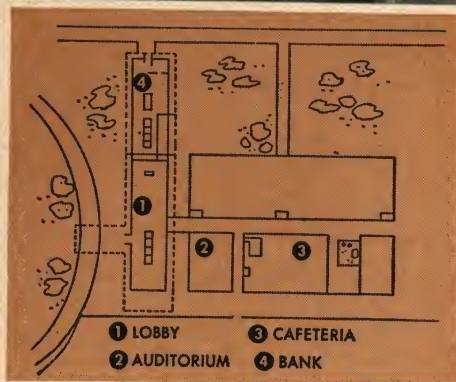
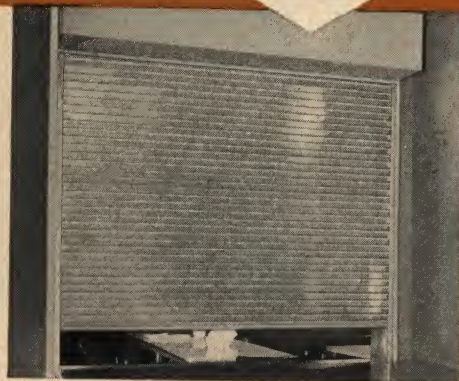




# Balfour

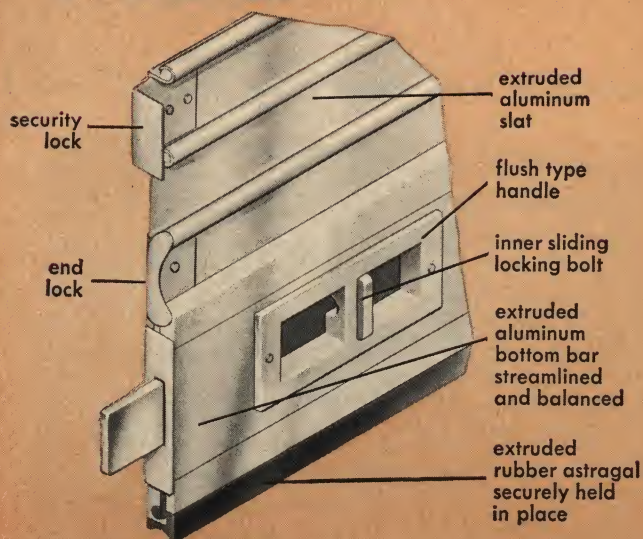
pygmee doors

- recognize the architectural determinants.
- their aluminum exterior combines with tiles, blocks, terrazzo, wood and furniture in creating the effects which reflect the spirit of our times.
- their lines are neat and complete. No recesses or exposed hardware are visible anywhere.
- in obtaining their functional aspects the aesthetics and mechanics are carried out to a peak without either suffering from the other.



## standard specifications

### ■ 16.2 curtain 16.3 bottom bar



**16.1 general** Doors shall be of the aluminum Pygmee type Rolling Doors mounted (on the face of the wall) (between jambs) and shall be (push-up) (crank) operation. Doors shall be as manufactured by Walter Balfour & Co., Inc.

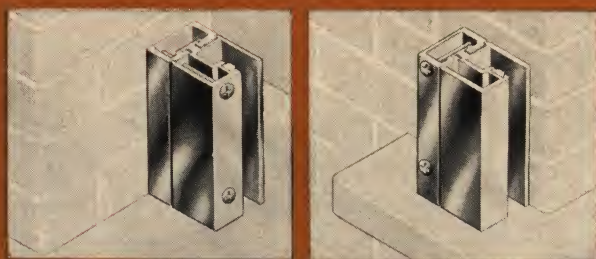
**16.2 curtain** Curtain shall consist of extruded aluminum slats not less than .048" thick and having a width of 1 1/4" and crown depth of 3/8". Slat extremities shall be provided with cadmium plated endlocks every second slat and cadmium plated security endlocks every sixth slat.

**16.3 bottom bar** Bottom bar shall be of extruded aluminum having a hollow rectangular cross-section, and shall be provided with inside located sliding locking bolts, held-in-groove (not glued) extruded rubber astragal, and recessed flush type aluminum handles.

▲ patent pending



■ 17.1 guides



between jamb mounted

face mounted

■ 17.5 crank operator

crank operator  
with worm  
and  
bevel drive



■ 17.2 spring counterbalance



felt faced  
ring to  
prevent  
slat  
abrasion

■ 17.7 guarantee



■ 17.8 removable mullion



■ 17.9 cylinder lock



▲ **17.1 guides** Guides shall be of the boxed-in frame type made of extruded aluminum and containing security curtain retaining groove to prevent curtain from being pulled out of guides. Guide groove shall have a continuous nylon strip to prevent slat wear and decrease curtain friction.

**17.2 spring counterbalance** Counterbalance shall consist of oil tempered and heat treated steel helical torsion springs housed in steel pipe. Springs shall be anchored to a torsion rod extending the full length of the springs and having fixed on it a balancing wheel located on interior with respect to bracket. Steel pipe shall not exceed 0.03" per ft. deflection, and shall have felt faced cast iron rings fastened to it.

**17.3 hood** Hood shall be of aluminum, 22 B & S Gauge.

**17.4 brackets** Brackets shall be steel plate of 1/8" minimum thickness.

**17.5 crank operator** Crank operator shall be furnished for doors exceeding 12' in width. Operator shall consist of a worm and bevel drive mounted on bracket and an operating removable arm.

**17.6 finish** Aluminum surfaces shall be given not less than 1/2 hour anodic coating. Ferrous surfaces shall be given a shop coat of aluminum paint.

**17.7 guarantee** Doors shall be guaranteed against defective materials and workmanship for a period of one year.

**optional materials  
and accessories**

▲ **17.8 removable mullion** Removable Mullion shall be of the boxed-in frame type made of extruded aluminum, and containing security curtain retaining groove. Mullion shall be provided with inside mounted locking bolt.

▲ **17.9 cylinder lock** Bottom Bar shall be equipped with a centrally located cylinder lock operating two opposite locking bolts mounted on inside of bottom bar.

**17.10 material** Curtain and hood may be furnished in stainless steel and Armco aluminized steel, type 2. Stainless steel slats shall be 22 U.S. gauge minimum, and aluminized steel shall be 24 U.S. gauge minimum.

▲ patent pending



## installation clearances

### operation

maximum height	opening width	operation
8'-0"	up to 12'	push-up
8'-0"	12'-18'	crank

### large openings

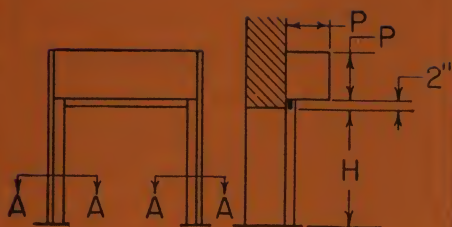
Openings over 18 feet wide shall be provided with two doors separated by a removable mullion to allow use of full opening width when doors are open.

### coil clearances

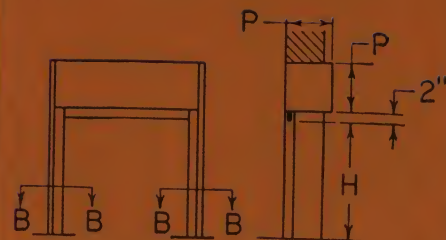
opening height H	coil dimensions P
up to 4'	9"
4'-6'	10"
6'-8'	11"

### types

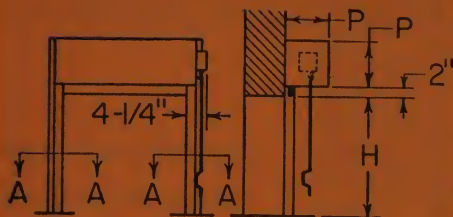
**push-up**  
**type YN10**  
face mounted



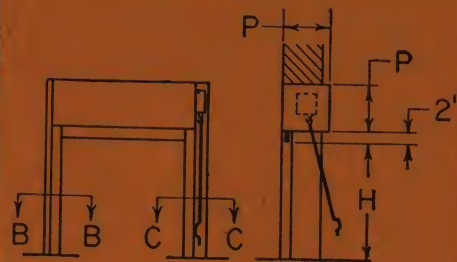
**push-up**  
**type YJ10**  
jamb mounted



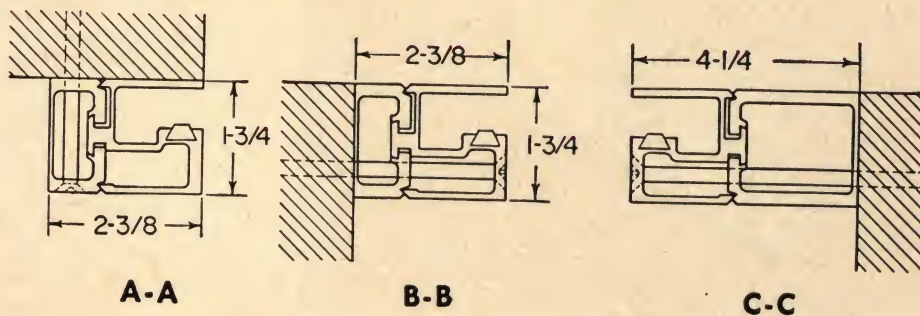
**crank**  
**type YN30**  
face mounted



**crank**  
**type YJ30**  
jamb mounted



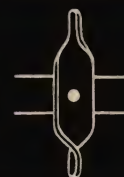
### details ( no scale )



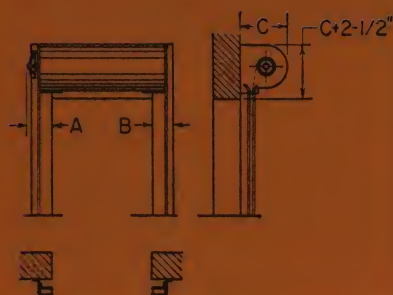


# Balfour

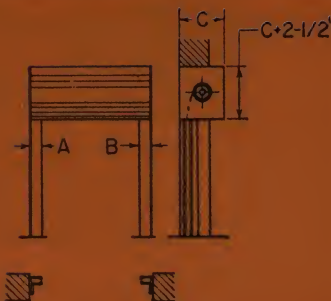
grilles bring  
elegance and protection  
to openings



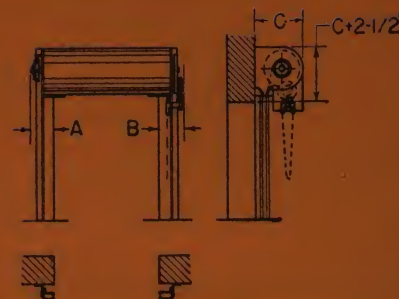
■ **types**  
**push-up**  
**type GN10**  
face mounted



**push-up**  
**type GJ10**  
jamb mounted



**push-up**  
**type GN20**  
face mounted



■ **clearances** [dimensions in inches]

opening size	A	B	C
to 7' high to 18' wide	4 1/4	3 1/8	14 1/8
to 10' high to 18' wide	4 3/4	3 1/8	16 5/8

not recommended above 110 sq. ft.

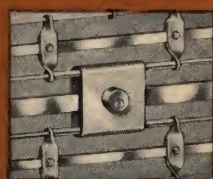
opening size	A	B	C
to 7' high to 16' wide	1 3/4	1 3/4	14
to 11' high to 16' wide	1 3/4	1 3/4	16 1/2

not recommended above 110 sq. ft.

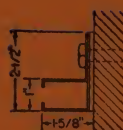
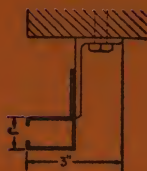
opening size	A	B	C
to 7' high to 18' wide	4 1/8	6	14 1/8
to 10' high to 18' wide	4 3/4	6	16 5/8
to 13' high to 21' wide	4 3/4	6	18 3/8

■ **standard specifications**

■ **19.2 curtain**  
**19.6 locking devices**



■ **19.4 guide details**



**19.1 general** Grilles shall be of the spiral link type, shall be mounted (on the face of the wall) (between jambs) and shall be (push-up) (chain) (crank) (motor) operated. Grilles shall be as manufactured by Walter Balfour & Co., Inc.

**19.2 curtain** Curtain shall consist of spiral steel links fastened to flat steel bars and forming rolling connection with alternating 5/16\" round bars. Self-aligning steel or malleable iron endlinks shall be fastened to end of bars to retain curtain in the guides. Clear openings between flat and round bars shall not exceed 1 1/4\". Curtain bottom shall have two steel angles.

**19.3 spring counterbalance** Counterbalance shall be by means of helical torsion springs housed in steel pipe and anchored to single torsion rod provided with balancing wheel. Pipe deflection shall be .03\" per ft. maximum.

**19.4 guides and brackets** Guides shall be of bent steel shapes. Brackets shall be steel plate 3/16\" thick minimum.

**19.5 hood** Hood shall be galvanized sheet metal, 24 U.S. gauge minimum.

**19.6 locking devices** A five tumbler cylinder lock working from either side shall be provided along with locking bars.

**19.7 finish** Curtains shall be galvanized. Non-galvanized ferrous surfaces shall have a shop coat of paint.

**19.8 guarantee** Grilles shall be guaranteed against defective materials and workmanship for a period of one year.

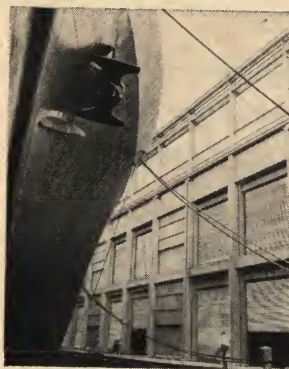
**optional materials**

Grille curtain may be furnished in aluminum or stainless steel.

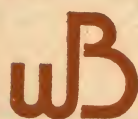
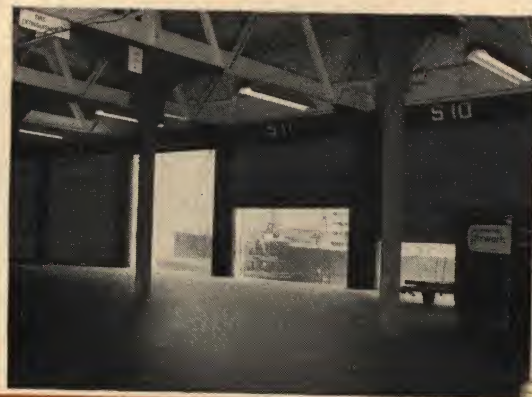




typical installation



PIER "B" PORT OF N.Y. AUTHORITY, HOBOKEN, N.J.



## Walter Balfour & Co., Inc.

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BROOKLYN 22, NEW YORK

Telephone: EVERgreen 3-3220

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